4TH GRADE

MATHEMATICS PARENT GUIDE

By the end of grade four, students develop quick recall of the basic multiplication facts and related division facts. They develop fluency with efficient procedures for multiplying multi-digit whole numbers, understand why the procedures work, and use them to solve problems. Students recognize decimal notation as an extension of the base-ten system. They relate their understanding of fractions to decimals. They generate equivalent fractions, simplify fractions, and identify equivalent fractions and decimals; compare and order whole numbers, simple fractions, and decimals to hundredths; and estimate decimal or fractional amounts in problem solving.

Students use transformations, including those that produce line and rotational symmetry. Students understand area as a measurable attribute of two-dimensional regions. They select appropriate units, strategies, and tools for solving problems that involve measuring area. They connect area measure to the area model for multiplication as a way to justify the formula for the area of a rectangle.

THE FOLLOWING ARE SPECIFIC SKILLS STUDENTS NEED TO ACQUIRE BY THE END OF GRADE FOUR:

NUMBER CONCEPTS AND OPERATIONS

- Read, write, and model numbers from tenths to 100,000.
- Read and write numbers to 99,999 in expanded form.
- Identify the place and value of a given digit in a five-digit number.
- Identify the place and value of a given digit in a decimal number.
- Compare whole numbers, fractions, and decimals using symbols (<, >, =).
- Order whole numbers and decimals to tenths.
- Understand the operations of addition, subtraction, multiplication, division, and how they are related.
- Name and write a fraction to represent a portion of a unit whole to halves, thirds, fourths, fifths, sixths, eighths, and tenths.
- Relate fractions to decimals that represent tenths.
- Use estimation, paper-and-pencil, mental math strategies, and calculators to solve problems.
- Add and subtract four-digit numbers, including money.
- Recall multiplication facts through 12 x 12 and related quotients.
- Multiply two- and three-digit numbers by a one-digit number.
- Divide a two-digit number by a one-digit number.

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MATH PARENT GUIDE

Mathematics parent guide (Continued)

PATTERNS AND NUMBER RELATIONSHIPS

- Recognize, describe, and extend repeating and growing patterns.
- Solve equations involving equivalent expressions (e.g., 6 x 2 = ___ x 3).
- Use >, <, = to compare two expressions involving whole-number operations.
- Demonstrate that changing the order of factors (commutative property) or the grouping of factors (associative property) does not change the product.
- Demonstrate the distribution of multiplication over addition using a rectangular array (e.g., 8 x 14 = 8 rows of 10 plus 8 rows of 4).
- Recognize that a given variable maintains the same value throughout an equation or expression (e.g., □ + □ = 8; □ = 4).

GEOMETRY

- Describe, identify, and classify cylinders, rectangular prisms, and various quadrilaterals (i.e., rectangle, square, rhombus, trapezoid, kite).
- Identify and draw parallel lines and intersecting lines.
- Identify right, obtuse, and acute angles.
- Identify a flip (reflection) or a slide (translation) of a geometric shape.
- Identify and draw lines of symmetry on regular polygons.
- Relate three-dimensional figures to two-dimensional nets.

MEASUREMENT

- Identify and determine measurements using appropriate tools and formulas for customary and metric units of length, weight, capacity, and volume (i.e., milliliter, liter, millimeter, centimeter, meter, quarter-inch, foot, yard, gram, kilogram, pound, cup, pint, quart, gallon).
- Determine the value of coins and bills up to $20.
- Count back change for single and multiple items purchased up to $20.
- Read, understand, and write time to the nearest minute, identifying a.m. and p.m.
- Read and record temperature to the nearest degree using a thermometer.
- Determine possible perimeters for a rectangle with fixed area and possible areas for a rectangle with a fixed perimeter.

STATISTICS AND DATA ANALYSIS

- Collect, organize, and display data to make predictions and answer questions using tables, line plots, and line graphs.
- Compare and contrast data using tables, line plots, line graphs, and bar graphs.
- Identify and distinguish clusters and outliers of a data set.
- Use basic concepts of probability, including random outcomes and simple probability experiments.